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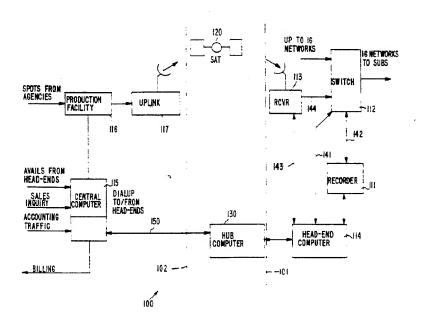
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(54) Title: ADDRESSABLE VIDEO FEED SYSTEM



#### (57) Abstract

A novel cable interconnect system (100) is taught, that provides for the overnight delivery of advertising messages to optical disc libraries located at cable headends and for the automated and customized insertion of ads on a plurality of cable systems throughout a wide geographic area. A verification and accounting system is taught which provides ad run verification and accounting information. The cable interconnect enables the delivery of commercial messages, for example via satellite (120), on an overnight basis from a central control facility (102) to cable television system headends (101) located in any desired geographic area such that a large number of cable television systems can receive the video ads simultaneously.

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2 3 4 5 6 7 ADDRESSABLE VIDEO FEED SYSTEM 8 9 INTRODUCTION 10 Technical Field This invention pertains to video systems and 11 more specifically to the video systems for addressably 12 downloading selective video signals to a plurality of 13 remote sites, for example, for use in inserting desired 14 15 commercials or other video matter into one or more network feeds at a plurality of remote locations. 16 17 18 Background 19 The procedures for purchasing cable time for 20 advertising messages and the related production and 21 verification process for these purchases is currently 22 adequate for national network advertisers. However, the 23 procedures for the purchase of spot time on individual 24 cable systems is cumbersome, inefficient and, in instances, nonexistent. A significant spot advertising 25 26 purchase on cable involves dealing with numerous cable 27 system operators. To purchase a spot program on cable 28 that would reach a majority of subscribers in the top 30 markets in the United States would require an 29 30 advertising agency to deal with approximately 500 31 individual cable systems -- some of which do not now have 32 ad insertion equipment, or, in instances where they do, 33 are able to insert ads on only a limited number of 34 channels. 35 While certain cable systems are linked by 36 cable interconnects that make the process more 37 efficient, all of these interconnects cover only a limited region and few of them have demonstrated 38 39 effective delivery capabilities. Advertising agencies 40 making a significant spot buy on cable television today

must deal with the mechanics of scheduling ads on

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multiple systems and of physically delivering multiple 1 commercial ad tapes to systems and interconnects 2 located in remote locations throughout the country. 3 Another significant problem that advertisers 4 and their agency representatives currently confront with 5 spot advertising on cable is that the follow-up 6 verification and accounting systems of cable operators 7 and inter-connects are uniformly unacceptable. 8 Frequently agencies are unable to confirm that 9 commercial messages ran at a particular time on a 10 particular channel on a particular system. The receipt 11 of separate invoices from numerous cable operators and 12 inter-connects is another negative frequently cited by 13 advertising agencies. 14 It is known in the prior are to utilize ad 15 insertion equipment at cable television system headends 16 utilizing video tape storage media and computer control. 17 Such systems provide adequate video quality, but are not 18 random accessed video storage media. Thus, in one such 19 prior art system, a large plurality of video tape drives 20 are used and periodically loaded with adequate tapes for 21 a given period of time. In another prior art system, 22 advertisements are downloaded to the headends of more 23 than one cable system in a given region, but the 24 advertisements are downloaded serially and identically 25 at each cable television system headend, making it 26 difficult to custom tailor advertising needs of each 27 cable television system. 28 29 SUMMARY OF THE INVENTION 30 In accordance to the teachings of this 31 32 33

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invention, a novel cable interconnect system is taught, that provides for the overnight delivery of advertising messages to optical disc libraries located at cable headends and for the automated and customized insertion of ads on a plurality of cable systems throughout a wide geographic area. A verification and accounting system

1	is taught which provides ad run verification and
2	accounting information.
3	This cable interconnect enables the delivery
4	of commercial messages, for example via satellite, on an
5	overnight basis from a central control facility to cable
6	television system headends located in any desired
7	geographic area. In one embodiment, the interconnect
8	system is entirely automated at each cable system
9	headend.
10	The central control facility includes tape
11	editing and tagging equipment, some production
12	capability, and a video distribution capability for
13	periodic transmissions to participating cable headends.
14	IN one embodiment, this video distribution is performed
15	via satellite such that a large number of cable
16	television systems can receive the video ads
17	simultaneously. In one embodiment of this invention,
18	these ads are transmitted at night, during low priority
19	transmission time. This central control facility also
20	contains a sophisticated traffic control system that
21	provides for ad run verification and for accounting and
22	invoicing. In one embodiment, this traffic control
23	provides that the ad run verification and accounting
24	and invoicing information is provided from the headends
25	to the central control facility on a daily basis.
26	Participating cable system headends include
27	video storage media, such as state-of-the-art "write
28	many" optical disc recorders/players, as well as
29	switching equipment and ad insertion equipment.
30	Controllers at the headends serve to communicate with
31	traffic control systems at the central control facility.
32	
33	BRIEF DESCRIPTION OF THE DRAWINGS
34	Figure 1 is a block diagram depicting one
35	embodiment of this invention; and
36	Figure 2 is a diagram depicting one embodiment
37	of switch 112 of the embodiment of Figure 1.
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## DESCRIPTION OF SPECIFIC EMBODIMENTS

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## System Operation

In operation, an advertiser who has purchased 6 a cable spot advertising schedule need deliver only one 7 videotape to central control facility 102, from which is 8 made the distribution of the advertisement to all 9 desired cable systems. Central control computer 115 10 uniquely "tags" the advertisement and places the tagged 11 advertisement in a library of advertisements that will 12 be delivered to cable system headends 101 on off-hour 13 time through, for example, satellites. The use of one 14 satellite allows total coverage of the Continental 15 United States. The use of additional satellites allows 16 coverage of other geographic areas, as might be desired. 17 Leased telephone lines (not shown) allow central control 18 facility 102 to inexpensively transmit instructions to a 19 headend computer 114 at each headend location 101 as to 20 which of the commercials on the transmitted library 21 should be stored on that headend's recorder/player 111. 22 Central control facility 102 also transmits to headend 23 computer 114 specific instructions as to when and on 24 what channel to play the recorded advertisements. Based 25 on these instructions, ad insertion equipment 26 automatically inserts advertisements at appropriate 27

Since ads are likely to be inserted on multiple cable channels at a given headend location, the same commercial message may be scheduled for different cable channels during closely approximate time sequences. Also, there may be instances when different commercial messages are scheduled to be aired at closely approximate times. Furthermore, there are certain cable networks where the timing of advertising "slots" is not predictable—for example, sports programs. While these time slots are set, they can and do vary based on

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programming and technical uncertainties. In one embodiment of this invention, recorder/player 111 comprises an optical disk device, as for example

4 available from Panasonic, which provides many important

5 advantages compared to prior art ad insertion equipment

6 which utilizes video tape recorders. In an alternative

7 embodiment, recorder/player 111 comprises computer disk

8 storage of digitized video. These advantages of the use

9 of optical disk or computer disk storage technology

10 include superior picture quality, significantly greater

11 reliability, and substantially faster shuttle time as

12 compared with video tape devices. The deminimus

13 "shuttle time" of optical disc technology, together with

14 ad insertion optimizing programs, virtually eliminates

15 the number of "make-goods" necessary for spots missed

16 due to player availability or collisions (breaktime

17 overlap). In certain high priority headends, two or

18 more optical discs are installed so as to further

19 reduce, if not eliminate, such collisions.

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From the viewpoint of participating cable operators, very little space at headend 101 is required for this system and the system of this invention requires no operating or maintenance time of the cable operator's employees.

Verification equipment is placed at the central control facility 102 and at headends 101 of participating cable systems. This equipment enables verification of when commercial messages were aired and information for accounting and invoicing purposes. This information typically includes title or other indicia of the commercial played, and quality of the playback. In one embodiment, this verification is performed within a short period of time, for example, 24 hours. In this embodiment, this next-day reporting surpasses the current capabilities of the Broadcast industry and is of vital interest to advertising agencies.

In accordance with the teachings of this invention, national advertisers are provided with an on-

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line inventory of local avails. This on-line inventory 1 of avails provides instantaneous information on what 2 local inventory is available and the pricing of this 3 inventory. With this on-line system, avail commitments 4 are easily and quickly provided to advertisers and their 5 agency representatives. The system of this invention 6 also offers advertisers a delivery system for cable 7 commercials that make a cable spot advertising purchase 8 easier and more efficient than a current Broadcast spot 9 purchase. The advertiser need deliver only one 10 commercial tape to the central control facility, 11 regardless of the number of locations that ultimately 12 will air the commercial. Advertisers can target smaller 13 geographic and demographic markets, they can more easily 14 effect cross-cable network advertising purchases, and 15 they can more efficiently conduct test marketing. 16 Advertisers are able to change commercial messages more 17 quickly in response to market reactions. The quality of 18 transmission provided by the satellite-to-optical disc 19 system provides consistently higher advertising video 20 quality than prior art which included the manual 21 delivery and use of multiple generation tape. 22 23 Hardware Description 24 Figure 1 is a diagram of one embodiment of a 25 system 100 constructed in accordance with the teachings 26 of this invention showing components at one headend 101 27 as well as central components at central control 28 facility 102. 29 30 Headend recorder/player 31 Video recorder/player 111 is capable of 32 recording commercials from an external source and 33 playing them back on command. In one embodiment, an 34 optical disc recorder/player is used as 35 video/recorder/player 111, providing playback quality 36 superior to that of currently used VTRs. 37 embodiment of such an optical disk recorder/player is

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1	available from Panasonic. The optical disk
2	recorder/player has the capability to be all or
3	partially erased on command and the erased disk area
4	rewritten. The set up time for the optical disk machine
5	is such that once a cue tone is received from the
6	network where a commercial is to be inserted there is
7	ample time to position the disk to the proper position
8	for play. This is also true for the write function.
9	The machine utilizes laser magneto optical disk
10	technology. The disk is arbitrarily segmented into 15
11	second units (30 frames per second). Commercials are
12	written into any available segment for future play-back.
13	Recorder/player 111 is under the control of headend
14	computer 114 and commands are executed based on computer
15	instructions. One or more recorder/player machines 111
16	are utilized at headend 101 depending on the commercial
17	needs. For example, for a typical cable system
18	utilizing fifteen (15) video channels, at least two
19	optical disks are preferably utilized so that great
20	flexibility is provided in allowing commercials to be
21	played simultaneously on more than one video channel,
22	and in rapid succession among various video channels.
23	Recorder/player 111 has a link 142 to video
24	switch 112 for video and audio insertion of a video spot
25	stored on recorder/player 111 on a network (play
26	function). Recorder/player 111 includes a link to
27	receiver 113 through switch 112 to record commercials on
28	the disk (record function). In one embodiment, the
29	interface between headend computer 114 and
30	recorder/player 111 is an RS-232 link that accepts
31	either individual control commands or a complete
32	program or script for execution. Such commands include,
33	for example, the position command, which positions
34	recorder/player 111 at the beginning of the desired
35	commercial, the play command, which plays the commercial
36	once positioned, and erase commend and then the record
37	command, which records a new commercial from receiver

113 at a desired location on the recorder/player 111,

1	following positioning. Genlock to the network is		
2	performed by recorder/player 111.		
3	In one embodiment of this invention,		
4	recorder/player 111 includes error detection codes for		
5	the play, record, and position functions. If headend		
6	computer 114 issues an erroneous command or if		
7	recorder/player 111 cannot process a command or program,		
8	recorder/player 111 returns an error code to headend		
9	computer 114. Headend computer 114 is then responsible		
10	for handling the error condition, such as by providing		
11	another one or more instructions and/or sending an alarm		
12	to central computer 115 located at central control		
13	facility 102		
14			
15	Switch		
16	Switch 112 allows both the record and play		
17	functions to properly occur. In the record function,		
18	switch 112 connects headend receiver 113 to		
19	recorder/player 111. In the play function, switch 112		
20	connects recorder/player 111 to the proper network for		
21	commercial insertion. One embodiment of switch 112 is		
22	shown in		
23	Figure 2, and includes the following components:		
24	1. Cross point grid 216		
25	This set of cross points allows the		
26	connection of sixteen networks per		
27	headend computer to recorder/player		
28	111. Receiver 113 and		
29	recorder/player 111 utilize this		
30	grid for the record and playback		
31	functions, and Genlock.		
32	017		
33	2. Cue tone detector 217		
34	This component monitors all networks		
35	for a commercial insert cue tone and		
36	passes this information to headend		
37	computer 114.		
38			

1	3. Vertical interval detector (VID) 218
2	This component links up to the
3	either receiver (for recordings) or
4	(on playback) the network on which
5	an insertion is being performed.
6	This component passes the commercial
7	identifier information in the
8	commercial to headend computer 114.
9	These data are used to perform
10	proper accounting of the playing and
11	recording of commercials.
12	·
13	The sixteen networks at headend 101 that carry
14	commercials terminate the video, audio left, and audio
15	right feeds in the cross connect bridge. All traffic
16	passes through switch 112. Recorder/player 111 includes
17	audio and video termination from switch 112 for the
18	record function, and audio and video termination to
19	switch 112 for the ad insertion function. Receiver 113
20	includes an audio and video termination to switch 112
21	for the record function. Headend computer 114 includes
22	link 141 (such as an RS-232 link) to switch 112 for
23	passing data between the switch 112 and headend computer
24	114, including cue tone, commercial identifier, cross
25	point switch, and network information.
26	
27	Receiver
28	Receiver 113 is utilized in the record
29	function. Receiver is tuned to the proper
30	satellite/transponder for commercial receipt. Receiver
31	113 includes video, audio left, and audio right links
32	144 to switch 112 which are terminated on one cross
33	point location of switch 112. When recording is to
34	occur, switch 112 (under control of headend computer 114
35	via link 141) cross connects receiver 113 to
36	recorder/player 111 to accomplish the record function.
37	In one embodiment, receiver 113 utilizes existing RF

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signals from a headend owned and operated satellite 1 2 antenna and LNB. In one embodiment, receiver 113 includes link 3 143 (such as an RS-232 connection) to headend computer 4 114 and is capable of receiving instructions as to which 5 transponder receiver 113 should be tuned to. 6 embodiment in which receiver 113 is remotely tunable, 7 headend computer 114 is capable of adjusting the 8 frequency of receiver 113 to allow reception from a 9 variety of transponders. 10 11 Headend Computer 12 Headend computer 114 is the controller of the 13 equipment of headend 101. Headend computer 114 is 14 capable of operating more than one switch 112 and 15 recorder/player 111. Headend computer 114 receives the 16 daily schedule from central computer 115, for example, 17 via leased or dial up telephone line. Based upon this 18 daily schedule, headend computer 114 determines what 19 commercials need to be erased from recorder/player 111 20 and executes instructions to recorder/player 111 in 21 order to erase those unneeded commercials. Headend 22 computer 114 also determines which commercials will be 23 received via receiver 113 and need to be recorded and 24 where they should be inserted on recorder/player 111. 25 Headend 114 also determines the desired 26 satellite/transponder and tunes receiver 113 27 accordingly. At the time for recording, headend 28 computer 114 monitors switch 112 via link 141. A 29 commercial identifier along with timing information is 30 passed for each commercial being sent via satellite 120 31 for recording. When headend computer 114 determines a 32 commercial received by receiver 113 needs to be recorded

by this cable system, recorded computer 114 sends a

message to recorder/player 111 to position it at the

proper recording frame. At the proper time headend

computer 114 instructs recorder/player 111 to begin

recording the received commercial and how many frames

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1 to record. Headend 114 computer counts the frames being

2 recorded to ensure all frames are recorded properly.

3 This procedure is repeated for each commercial received

4 by receiver 13 which needs to be recorded for use by

5 this cable system.

6 During the daily commercial insertion time

7 window, headend computer 114 determines from the

schedule the sequence commercials need to be played, the 8

9 network they will be played on, and the time window for

10 the playing. When the cue tone is passed from switch

112 to the headend computer 114, headend computer 114 11

12 determines the correct timing for the commercial playing

13 and issues a play command to recorder/player 111 and a

14 cross point close command to switch 112. Switch 112

15 disconnects the network feed and substitutes the

16 commercial being played by recorder/player 111 and at

the same time passes the commercial frame identifiers 17

back to headend computer 114 via link 141 as the 18

19 commercial is playing. Headend computer 114 times the

20 commercial to determine when the commercial has

21 finished, at which time headend computer 114 instructs

switch 112 to return the cross point to the network. 22

23 Headend computer 114 verifies what frames were sent and

24 develops an execution report for real time or delayed

25 transmission to central computer 115. This sequence is

repeated for all commercials that need to be played for

27 a given period of time.

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28 If a commercial does not play due to lack of

29 cue tone or a collision, headend computer 114 logs this 30

information. Periodically (for example, daily), central

31 computer 115 communicates to headend computer 114 the

32 schedule for the next time period. In one embodiment of

33 this invention, central computer 115 communicates this

34 information to computer 114 via a leased or dial up

35 telephone line. Headend computer 114 passes to central

36 computer 115 information indicating all commercials that

37 played as well as any commercials or frames that did not

38 play per schedule. Since satellite uplinks are

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1	relatively expensive, headend computer 114 communicates
2	information to central computer 115 typically over
3	dialup or leased telephone lines and this communication
4	can take place at the same or different times as does
5	the schedule transmission from central computer 115 to
6	headend computer 114. In one embodiment, central
7	computer 115 makes telephone connection with headend
8	computer 114 to transmit the schedule for the next time
9	period, and then receives the reporting information from
10	headend computer 114 over the same communications link.
11	In one embodiment, hub computers 130 are installed
12	between central computer 115 and Headend computers 114
13	to be used as a Telecommunications concentrator.
<b>14</b>	In one embodiment, headend computer 114 is
15	capable of producing a report on a local monitor screen
16	of the schedule of commercials for the viewing by the
L7	local headend operator, if required.
18	
L9	Error detection
20	Recorder/player 111 is capable of issuing a
21	series of error messages relating to all the commands
22	issued by headend computer 114. Headend computer 114 is
23	capable of determining if there is a problem with
24	recorder/player 111 and, if so, informs central computer
25	115 immediately. Headend computer 114 monitors the play
26	identifier information and determines if the process is
27	not operating properly and immediately notifies central
28	computer 115 and receiver 113. All commands to switch
29	112, recorder/player 111, and receiver 115 are
30	positively acknowledged by the receiving device.
31	Central computer 115 receives demand calls, for example
32	on dial up telephone lines, from headend computer 114
33	when there are immediate error reports to send.
34	Central computer 115 formats error reports for immediate

action when received from a headend computer 114.

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1 Central computer Central computer 115 is the main control 2 point, which stores all scheduling information for all 3 headends. In one embodiment, this scheduling 4 information for all headends is stored in central 5 computer 115 for a predetermined period of time, for 6 7 example, for a rolling three month period. All avails that are available to be sold are posted by headend, by 8 network, by hour. On a periodic (e.g., daily) basis 9 central computer 115 develops a list of all commercials 10 that need to be transmitted via the uplink that evening. 11 12 Central computer 115 transmits to each headend computer 114 the schedule for that headend for the next time 13 Each headend 114 responds with all the 14 information concerning the verification and error 15 16 reporting pertaining to the schedule for the prior time 17 period. Central computer 115 receives all record and 18 play error reports and formats these data for the 19 central control personnel. The central computer must maintain a log of every disk and what commercials reside 20 at each headend, and at what disk location. 21 This will 22 allow the central computer to tell each headend what to 23 erase and what to record on every day. This will also 24 allow the central computer to match the daily schedule 25 with the commercials in the field and determine what 26 commercials need to be transmitted that day. 27 central computer will direct the headend computer where 28 to write each commercials as part of the daily 29 scheduling process. 30 Central computer 115 also performs billing, traffic, and sales support functions. Central computer 31 115 is capable of creating a bill to each advertising 32 33 agency reflecting the commercial played (affidavit), 34 location, network time slot, and the bill for the avail. This will be done, for example, daily, summarized 35 36 weekly, and monthly for actual bill issuance.

billing data are also used to generate the appropriate

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revenue to the multiple system operators (MSO's) 1 reflecting the usage of their avails. 2 3 Production facilities 4 Production facility 116 is capable of 5 periodically (e.g., daily) producing a set of high 6 quality tapes of all commercials that need to be 7 transmitted to the headends. Control information 8 (commercial identification, synchronization characters, 9 start and stop recording characters) are inserted into 10 the commercials, as supplied by central computer 115. 11 The production facilities personnel are responsible for .12 assembling the proper tapes for transmission as directed 13 by the central computer. 14 When a headend computer 114 notifies the 15 central computer that a record function wasn't handled 16 correctly the production facilities and central control 17 personnel must determine how to best send the commercial 18 to the proper headend. For example, if a relatively few 19 errors are reported to central computer 115 by various 20 headends, the central computer 115 may instruct those 21 headends to substitute a different commercial or to not 22 insert the erroneously received commercial at the 23 appropriate time. Alternatively, if many errors are 24 noted by various headends, central computer 115 will 25 schedule a retransmission time during which erroneously 26 received commercials will be retransmitted for receiving 27 again. In an alternative embodiment, commercials are 28 sent more than once and, if a headend experiences error 29 in receiving a given commercial during its first 30 transmission, it will automatically or in response to 31 instructions from central computer 115, attempt to 32 record the commercial subsequently. 33 Uplink facility 117 is the point where, on a 34 periodic basis, the commercials needing transmission to 35 the various headends are sent via satellite 120. 36 Central control computer 115 determines what 37

satellite/transponder is to be used and provides this

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1 information to uplink 117 or to the uplink personnel.

2 At the scheduled time, the tape containing the selected

3 commercials for transmission to the various headends is

4 uplinked to the correct satellite/transponder.

5 In one embodiment, commercials are given a

6 unique eight character identification. This identifier

7 is used for scheduling and for the uplink record

8 processing. The eight character code is inserted in

9 each commercial for future reference. The central

10 computer stores these data in a data file which also

11 contains the name and address of the advertiser and the

12 date the commercial was submitted. Control information

13 about storage is also conveniently included in this data

14 file.

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15 Each advertising agency is assigned a unique

16 identifier. This identifier is associated with a

17 commercial used in a particular avail (for billing

18 purposes). The data includes the advertising agency

19 name, address, and any special billing information. All

summary billing information utilize this identifier to

21 associate bills to the proper agency.

Once a commercial is complete (30 frames per

23 second for the commercial length), the eight character

24 commercial identification is inserted in the vertical

25 interval of the standard NTSC TV signal. These data are

26 used to verify the playing of the commercial on the

27 correct network at the correct time. For recording

28 purposes, the production personnel also add control

29 characters at the beginning and end of the commercial.

30 These control characters are not part of the commercial

31 that will play on the network. Rather, they are

32 stripped off at the headend by the recording process.

The invention now being fully described, it

34 will be apparent to one of ordinary skill in the art

35 that many changes and modifications can be made thereto

36 without departing from the spirit or scope of the

37 appended claims.

1	WHAT IS CLAIMED IS		
2			
3	<ol> <li>A video system comprising:</li> </ol>		
4	a source of video spots;		
5	a central computer for storing information defining		
6	which of said video spots are to be aired on selected		
7	ones of a plurality of video distribution systems;		
8	transmission means responsive to said central		
9	computer for simultaneously transmitting to said		
10	plurality of video distribution systems all of said		
11	video spots which are to be aired by at least one of		
12	said plurality of video distribution systems during a		
13	predetermined time period; and		
14	for each of said plurality of video distribution		
15	systems:		
16	means for receiving said video spots		
17	transmitted by said transmision means;		
18	a headend computer for receiving information		
19	from said central computer indicating which of said		
20	video spots are to be aired by said video		
21	distribution system, and at approximately what		
22	time, and on which of a plurality of networks of		
23	said video distribution system;		
24	recording means responsive to said headend		
25	computer for recording said video spots to be aired		
26	by said video distribution system during said		
27	predetermined period of time;		
28	playback means for playing back said video		
29	spots as stored by said recording means, at desired		
30	times; and		
31	means for inserting said spots as played back,		
32	on a desired one of said networks.		
33			
34	<ol> <li>A system as in claim 1 wherein said playback</li> </ol>		
35	means comprises a video player and switch means for		

2. A system as in claim 1 wherein said playback means comprises a video player and switch means for routing said video spot for insertion to a desired one of said networks.

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1 3. A system as in claim 2 wherein said playback 2 means further comprises: 3 monitoring means for monitoring a network and 4 detecting a cue tone; and 5 means responsive to said monitoring means for 6 initiating playback of said video spot. 7 8 A system as in claim 1 which further comprises means for monitoring said video spots as they are 9 inserted into a network, and storing data relating 10 11 thereto. 12 13 A system as in claim 4 which further comprises means for transmitting said data relating thereto to 14 15 said central computer. 16 17 6. A system as in claim 1 which further comprises 18 means for monitoring said video spots as they are 19 recorded. 2.0 21 A system as in claim 6 wherein said means for 22 monitoring further comprises means for storing data 23 relating to the recording of said video spots. 24 25 8. A system as in claim wherein said means for 26 monitoring further comprises means for transmitting said 27 data relating to the recording of said video spots to 28 said central computer. 29 30 9. A system as in claim 8 wherein said central 31 computer means further comprises means for 32 retransmitting video spots which have not been properly 33 recorded by one or more of said video distribution 34 systems.

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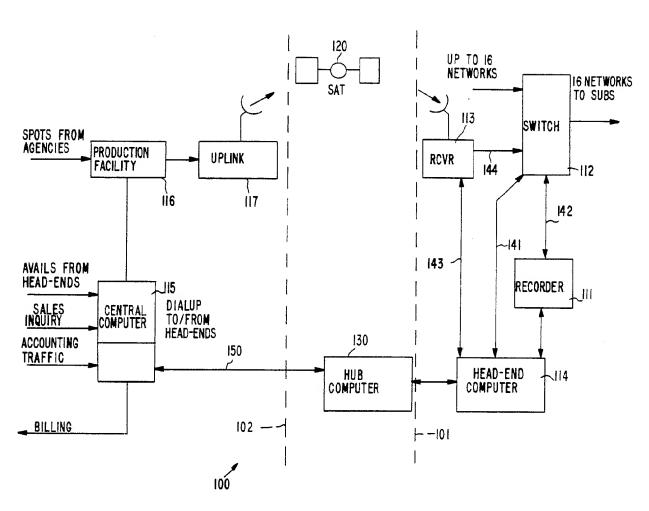
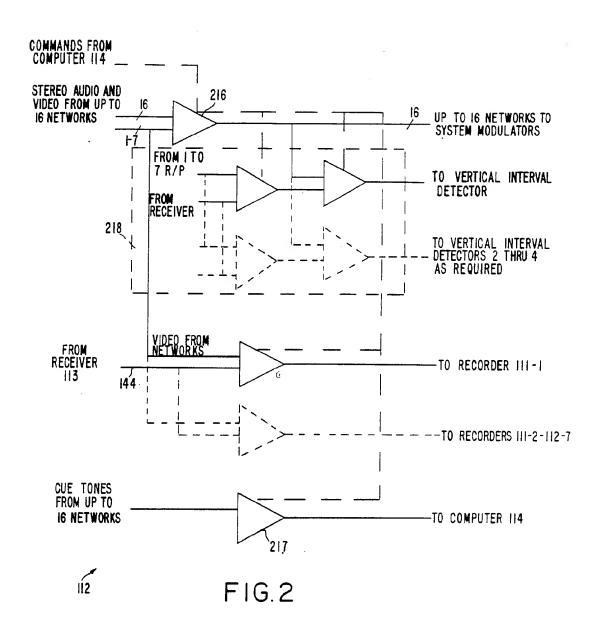


FIG.I

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### INTERNATIONAL SEARCH REPORT

International application No.
PCT/US92/04081

A. CLASSIFICATION OF SUBJECT MATTER IPC(5): H04N 5/76				
f .	:358/335 to International Patent Classification (IPC) or to both	national classification and IPC		
B. FIE	LDS SEARCHED		***************************************	
Minimum c	documentation searched (classification system followe	d by classification symbols)	-	
U.S. :	358/84,86,310,342,186; 360/33.1,35.1			
Documenta	tion searched other than minimum documentation to th	e extent that such documents are included	in the fields searched	
		-		
Electronic	data base consulted during the international search (na	ame of data base and, where practicable	, search terms used)	
C. DOC	CUMENTS CONSIDERED TO BE RELEVANT		N	
Category*	Citation of document, with indication, where a	ppropriate, of the relevant passages	Relevant to claim No.	
<u>X</u> ,P Y	US, A, 5,029,232 (NALL) 02 July 1991, Figure 1 6 lines 58-68 and lines 1-6 respectively.	, column 1, lines 27-30, columns 5 and	1,2,6,7 3,4	
Y,P	US, A, 5,029,014 (LINDSTROM) 02 July 1991, I	3,4		
Α,	US, A, 4,814,883 (PERINE ET AL.) 21 March 19	1-9		
A	US, A, 4,724,491 (LAMBERT) 09 February 1988	1-9		
	·			
	her documents are listed in the continuation of Box C	See material familiar annual		
<del></del>				
"A" do	Special categories of cited documents:  "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the prisciple or theory underlying the invention			
1	to be part of particular relevance  "X" document of particular relevance; the claimed invention cannot be			
"L" do	cument which may throw doubts on priority claim(s) or which is	considered novel or cannot be conside when the document is taken alone	red to involve an inventive step	
	ted to establish the publication date of another citation or other ecial reason (as specified)	"Y" document of particular relevance; the considered to involve an inventive		
	scument referring to an oral disclosure, use, exhibition or other cans	combined with one or more other such being obvious to a person skilled in the	documents, such combination	
	cument published prior to the international filing date but later than e priority date claimed	*&* document member of the same patent	family	
Date of the actual completion of the international search  Date of mailing of the international search report				
30 JULY 1992 08 OCT 1992				
Name and mailing address of the ISA/ Commissioner of Patents and Trademarks  Authorized officer X Oscholar Williams				
Box PCT Washington, D.C. 20231 ROBERT CHEVALIER				
1	io. NOT APPLICABLE	Telephone No. (703) 305-4780		